National Primary Drinking Water Standard Comparison with DJS 2-14 Water Analysis

Contaminant	MCL or TT[1] (mg/L)[1]	DJS 2-14 or Fault Block E Water Sample Analysis Results	Potential health effects from long-term exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[1]
Acrylamide	TT[4]	No Analysis	Nervous system or blood problems; increased risk of cancer	Added to water during sewage/ wastewater treatment	zero
Alachlor	0.002	No Analysis	Eye, liver, kidney, or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops	zero
Alpha/photon emitters	15 picocuries per Liter (pCi/L)	No Analysis	Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation	zero
Antimony	0.006	No Analysis	Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants;	0.006
Arsenic	0.010	<0.005	Skin damage or problems with circulatory systems, and may have	Erosion of natural deposits; runoff from orchards; runoff	0
Asbestos (fibers >10 micrometers)	7 million fibers per Liter (MFL)	No Analysis	Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits	7 MFL
Atrazine	0.003	No Analysis	Cardiovascular system or reproductive problems	Runoff from herbicide used on row crops	0.003
Barium	2	0.12	Increase in blood pressure	Discharge of drilling wastes; discharge from metal	2
Benzene	0.00500	1.51000	Anemia; decrease in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage	zero
Benzo(a)pyrene (PAHs)	0.0002	No Analysis	Reproductive difficulties; increased risk of cancer	Leaching from linings of water storage tanks and	zero
Beryllium	0.004	No Analysis	Intestinal lesions	Discharge from metal refineries and coal-burning	0.004
Beta photon emitters	4 millirems per year	(Gross Beta = 57 +- 5.8 pCi/L)	Increased risk of cancer	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation	zero
Bromate	0.010	No Analysis	Increased risk of cancer	Byproduct of drinking water disinfection	zero
Cadmium	0.005	No Analysis	Kidney damage	Corrosion of galvanized pipes; erosion of natural	0.005
Carbofuran	0.04	No Analysis	Problems with blood, nervous system, or reproductive system	Leaching of soil fumigant used on rice and alfalfa	0.04
Carbon tetrachloride	0.005	No Analysis	Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities	zero
Chloramines (as Cl_2)	MRDL=4.0[1]	No Analysis	Eye/nose irritation; stomach discomfort; anemia	Water additive used to control microbes	MRDLG=4[1]
Chlordane	0.002	No Analysis	Liver or nervous system problems; increased risk of cancer	Residue of banned termiticide	zero
Chlorine (as Cl_2)	MRDL=4.0[1]	No Analysis	Eye/nose irritation; stomach discomfort	Water additive used to control microbes	MRDLG=4[1]
Chlorine dioxide (as ClO_2)	MRDL=0.8[1]	No Analysis	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Water additive used to control microbes	MRDLG=0.8[1]
Chlorite	1.0	No Analysis	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Byproduct of drinking water disinfection	0.8
Chlorobenzene	0.1	No Analysis	Liver or kidney problems	Discharge from chemical and agricultural chemical factories	0.1
Chromium (total)	0.1	No Analysis	Allergic dermatitis	Discharge from steel and pulp mills; erosion of	0.1
Copper	TT[5]; Action Level=1.3	No Analysis	Short-term exposure: Gastrointestinal distress. Long- term exposure: Liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level	Corrosion of household plumbing systems; erosion of natural deposits	1.3
Cryptosporidium	TT[7]	No Analysis	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
Cyanide (as free cyanide)	0.2	No Analysis	Nerve damage or thyroid problems	Discharge from steel/metal factories; discharge from plastic and fertilizer factories	0.2
2,4-D	0.07	No Analysis	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops	0.07
Dalapon	0.2	No Analysis	Minor kidney changes	Runoff from herbicide used on rights of way	0.2
1,2-Dibromo-3- chloropropane (DBCP)	0.0002	No Analysis	Reproductive difficulties; increased risk of cancer	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	zero
o-Dichlorobenzene	0.6	No Analysis	Liver, kidney, or circulatory system problems	Discharge from industrial chemical factories	0.6
p-Dichlorobenzene	0.075	No Analysis	Anemia; liver, kidney, or spleen damage; changes in blood	Discharge from industrial chemical factories	0.075
1,2-Dichloroethane	0.005	No Analysis	Increased risk of cancer	Discharge from industrial chemical factories	zero

1,1-Dichloroethylene	0.007	No Analysis		Liver problems	Discharge from industrial chemical factories	0.007
cis-1,2- Dichloroethylene	0.07	No Analysis		Liver problems	Discharge from industrial chemical factories	0.07
trans-1,2, Dichloroethylene	0.1	No Analysis		Liver problems	Discharge from industrial chemical factories	0.1
Dichloromethane	0.005	No Analysis		Liver problems; increased risk of cancer	Discharge from industrial chemical factories	zero
1,2-Dichloropropane	0.005	No Analysis		Increased risk of cancer	Discharge from industrial chemical factories	zero
Di(2-ethylhexyl) adipate	0.4	No Analysis		Weight loss, liver problems, or possible reproductive	Discharge from chemical factories	0.4
Di(2-ethylhexyl) phthalate	0.006	No Analysis		Reproductive difficulties; liver problems; increased	Discharge from rubber and chemical factories	zero
Dinoseb	0.007	No Analysis		Reproductive difficulties	Runoff from herbicide used on soybeans and	0.007
Dioxin (2,3,7,8-TCDD)	0.00000003	No Analysis		Reproductive difficulties; increased risk of cancer	Emissions from waste incineration and other	zero
Diquat	0.02	No Analysis		Cataracts	Runoff from herbicide use	0.02
Endothall	0.1	No Analysis		Stomach and intestinal problems	Runoff from herbicide use	0.1
Endrin	0.002	No Analysis		Liver problems	Residue of banned insecticide	0.002
Epichlorohydrin	TT[4]	No Analysis		Increased cancer risk; stomach problems	Discharge from industrial chemical factories; an	zero
Ethylbenzene	0.7	0.055		Liver or kidney problems	Discharge from petroleum refineries	0.7
Ethylene dibromide	0.00005	No Analysis		Problems with liver, stomach, reproductive system, or	Discharge from petroleum refineries	zero
Fecal coliform and E. coli	MCL[6]	No Analysis		Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be	Human and animal fecal waste	zero[r]
Fluoride	4.0	6.86		Bone disease (pain and tenderness of the	Water additive which promotes strong teeth;	4.0
Giardia lamblia	TT[7]	No Analysis		Short-term exposure: Gastrointestinal illness	Human and animal fecal waste	zero
Glyphosate	0.7	No Analysis		Kidney problems; reproductive difficulties	Runoff from herbicide use	0.7
Haloacetic acids (HAA5)	0.060	No Analysis		Increased risk of cancer	Byproduct of drinking water disinfection	n/a[r]
Heptachlor	0.0004	No Analysis		Liver damage; increased risk of cancer	Residue of banned termiticide	zero
Heptachlor epoxide	0.0002	No Analysis		Liver damage; increased risk of cancer	Breakdown of heptachlor	zero
Heterotrophic plate count (HPC)	TT[7]	No Analysis		HPC has no health effects; it is an analytic method used to measure the variety of bacteria	HPC measures a range of bacteria that are naturally present in the environment	n/a
Hexachlorobenzene	0.001	No Analysis		Liver or kidney problems; reproductive	Discharge from metal refineries and agricultural	zero
Hexachloro- cyclopentadiene	0.05	No Analysis		Kidney or stomach problems	Discharge from chemical factories	0.05
Lead	TT[5]; Action Level=0.015	No Analysis		Infants and children: Delays in physical or mental development; children could show slight deficits in attention span and learning abilities; Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits	zero
Legionella	TT[7]	No Analysis		Legionnaire's Disease, a type of pneumonia	Found naturally in water; multiplies in heating	zero
Lindane	0.0002	No Analysis		Liver or kidney problems	Runoff/leaching from insecticide used on cattle,	0.0002
Mercury (inorganic)	0.002	No Analysis		Kidney damage	Erosion of natural deposits; discharge from refineries	0.002
Methoxychlor	0.04	No Analysis		Reproductive difficulties	Runoff/leaching from insecticide used on fruits,	0.04
Nitrate (measured as Nitrogen)	10	< 0.2		Infants below the age of six months who drink water containing nitrate in excess of the MCL	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	10
Nitrite (measured as Nitrogen)	1	No Analysis		Infants below the age of six months who drink water containing nitrite in excess of the MCL	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	1
Oxamyl (Vydate)	0.2	No Analysis		Slight nervous system effects	Runoff/leaching from insecticide used on apples,	0.2
Pentachlorophenol	0.001	No Analysis		Liver or kidney problems; increased cancer risk	Discharge from wood-preserving factories	zero
Picloram	0.5	No Analysis		Liver problems	Herbicide runoff	0.5
Polychlorinated biphenyls (PCBs)	0.0005	No Analysis		Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system	Runoff from landfills; discharge of waste chemicals	zero
Radium 226 and Radium 228 (combined)	5 pCi/L	No Analysis		Increased risk of cancer	Erosion of natural deposits	zero
Selenium	0.05	<0.005		Hair or fingernail loss; numbness in fingers or	Discharge from petroleum and metal refineries;	0.05
Simazine	0.004	No Analysis		Problems with blood	Herbicide runoff	0.004
Styrene	0.1	No Analysis		Liver, kidney, or circulatory system problems	Discharge from rubber and plastic factories; leaching	0.1
Tetrachloroethylene	0.005	No Analysis		Liver problems; increased risk of cancer	Discharge from factories and dry cleaners	zero
Thallium	0.002	No Analysis		Hair loss; changes in blood; kidney, intestine, or	Leaching from ore-processing sites; discharge from	0.0005
Toluene	1	0.83		Nervous system, kidney, or liver problems	Discharge from petroleum factories	1
Total Coliforms	5.0 percent[8]	No Analysis		Coliforms are bacteria that indicate that other, potentially harmful bacteria may be present. See	Naturally present in the environment	zero
Total Trihalomethanes (TTHMs)	0.080	No Analysis		Liver, kidney, or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection	n/a[r]
Toxaphene	0.003	No Analysis		Kidney, liver, or thyroid problems; increased risk	Runoff/leaching from insecticide used on cotton and	zero
2,4,5-TP (Silvex)	0.05	No Analysis		Liver problems	Residue of banned herbicide	0.05
1,2,4-Trichlorobenzene	0.07	No Analysis		Changes in adrenal glands	Discharge from textile finishing factories	0.07
1,1,1-Trichloroethane	0.2	No Analysis		Liver, nervous system, or circulatory problems	Discharge from metal degreasing sites and other factories	0.2
1,1,2-Trichloroethane	0.005	No Analysis		Liver, kidney, or immune system problems	Discharge from industrial chemical factories	0.003
Trichloroethylene	0.005	No Analysis		Liver problems; increased risk of cancer	Discharge from metal degreasing sites	zero
Turbidity	TT[7]	No Analysis		Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness	Soil runoff	n/a
Uranium	30µg/L	<5 ug/L		Increased risk of cancer, kidney toxicity	Erosion of natural deposits	zero
Vinyl chloride	0.002	No Analysis		Increased risk of cancer	Leaching from PVC pipes; discharge from	zero
Viruses (enteric)	TT[7]	No Analysis		Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
Xylenes (total)	10	0.39		Nervous system damage	Discharge from petroleum factories;	10

LEGEND

DISINFECTANT | DISINFECTION BYPRODUCT | INORGANIC CHEMICAL | MICROORGANISM | ORGANIC CHEMICAL | RADIONUCLIDES

NOTES

1 Definitions

- **Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.
- **Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.
- **Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- **Maximum Residual Disinfectant Level (MRDL):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **Treatment Technique (TT):** A required process intended to reduce the level of a contaminant in drinking water.

2 Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million (ppm).

3 Health effects are from long-term exposure unless specified as short-term exposure.

4 Each water system must certify annually, in writing, to the state (using third-party or manufacturers certification) that when it uses acrylamide and/or epichlorohydrin to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows: Acrylamide = 0.05 percent dosed at 1 mg/L (or equivalent); Epichlorohydrin = 0.01 percent dosed at 20 mg/L (or equivalent).

5 Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.

6 A routine sample that is fecal coliform-positive or E. coli-positive triggers repeat samples-

-If any repeat sample is total coliform-positive, the system has an acute MCL violation. A routine sample that is total coliform-positive and fecal coliform-negative or E. coli- negative triggers repeat samples--If any repeat sample is fecal coliform-positive or E. coli-positive, the system has an acute MCL violation. See also Total Coliforms.

7 EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water, and (2) filter their water or meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels:

- ***Cryptosporidium*:** 99 percent removal for systems that filter. Unfiltered systems are required to include Cryptosporidium in their existing watershed control provisions.
- **Giardia lamblia:** 99.9 percent removal/inactivation
- **Viruses:** 99.9 percent removal/inactivation
- ***Legionella*:** No limit, but EPA believes that if *Giardia* and viruses are removed/ inactivated, according to the treatment techniques in the surface water treatment rule, *Legionella* will also be controlled.
- **Turbidity:** For systems that use conventional or direct filtration, at no time can turbidity (cloudiness of water) go higher than 1 nephelometric turbidity unit (NTU), and samples for turbidity must be less than or equal to 0.3 NTU in at least 95 percent of the samples in any month. Systems that use filtration other than the conventional or direct filtration must follow state limits, which must include turbidity at no time exceeding 5 NTU.
- **HPC:** No more than 500 bacterial colonies per milliliter
- **Long Term 1 Enhanced Surface Water Treatment:** Surface water systems or ground water systems under the direct influence of surface water serving fewer than 10,000 people must comply with the applicable Long Term 1 Enhanced Surface Water Treatment Rule provisions (e.g. turbidity standards, individual filter monitoring, *Cryptosporidium* removal requirements, updated watershed control requirements for unfiltered systems).
- **Long Term 2 Enhanced Surface Water Treatment:** This rule applies to all surface water systems or ground water systems under the direct influence of surface water. The rule targets additional *Cryptosporidium* treatment requirements for higher risk systems and includes provisions to reduce risks from uncovered finished water storages facilities and to ensure that the systems maintain microbial protection as they take steps to reduce the formation of disinfection byproducts. (Monitoring start dates are staggered by system size. The largest systems (serving at least 100,000 people) will begin monitoring in October 2006 and the smallest systems (serving fewer than 10,000 people) will not begin monitoring until October 2008. After completing monitoring and determining their treatment bin, systems generally have three years to comply with any additional treatment requirements.)
- **Filter Backwash Recycling:** The Filter Backwash Recycling Rule requires systems that recycle to return specific recycle flows through all processes of the system's existing conventional or direct filtration system or at an alternate location approved by the state.

8 No more than 5.0 percent samples total coliform-positive in a month. (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month.) Every sample that has total coliform must be analyzed for either fecal coliforms or E. coli. If two consecutive TC-positive samples, and one is also positive for E. coli or fecal coliforms, system has an acute MCL violation.

9 Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants:

- **Haloacetic acids:** dichloroacetic acid (zero); trichloroacetic acid (0.3 mg/L)
- **Trihalomethanes:** bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L)

NATIONAL SECONDARY DRINKING WATER REGULATION

Contaminant	Secondary Maximum Contaminant Level (mg/L)	DJS 2-14 / Fault Block E Water Analysis Results		
Aluminum	0.05 to 0.2 mg/L	1.12		
Chloride	250 mg/L	305		
Color	15 (color units)	Not Analyzed		
Copper	1.0 mg/L	Not Analyzed		
Corrosivity	Noncorrosive	Not Analyzed		
Fluoride	2.0 mg/L	6.88		
Foaming Agents	0.5 mg/L	Not Analyzed		
Iron	0.3 mg/L	11.9		
Manganese	0.05 mg/L	0.128		
Odor	3 threshold odor number	Not Analyzed		
pH	6.5-8.5	8.8		
Silver	0.10 mg/L	Not Analyzed		
Sulfate	250 mg/L	34		
Total Dissolved Solids	500 mg/L	1540		
Zinc	5 mg/L	Not Analyzed		

FOR MORE INFORMATION ON EPA'S SAFE DRINKING WATER:

ADDITIONAL INFORMATION: